

CLAIMS: Please amend the claims according to the status designation in the following list, which contains all the claims that were ever in the application, with the text of all active claims.

1.-4. (Cancelled)

5. (CURRENTLY AMENDED)

A four chamber, two-stroke rotatably reciprocating vane internal-combustion engine comprising a cylindrical casing (1), air-cooled by having outwardly pointed heat-radiating ribs on the cylinder and the heads or water cooled by having a water jacketed double wall wherein cooling fluid passes through it; said casing equipped with longitudinally extending walls (2 & 3) being unitary or affixed to the cylindrical casing; vanes (7 & 8) unitary or affixed to a power output rotary shaft (6), said power output rotary shaft rotatably alternating in back and forth fashion and together with the vanes referred to as the swinging piston;

said power output rotary shaft (6) could be hollow for water cooling and it is mounted within the cylindrical casing upon air-cooled or water-jacketed end plates or heads (10 & 11);

sealing strips (9 & 12) embodied in groves and provided between the walls (2 & 3) and the power output rotary shaft (6), between the vanes (7 & 8), the cylindrical casing (1) and the end plates (10 & 11) respectively;

four working chambers (a, b, c and d) formed between the vanes (7 & 8) and the walls (2 & 3) inside the casing change their volume in accordance with the alternating position of the vanes, each two of the four chamber rooms experiencing in one cycle and at the same time first a compression stroke and second an ignition-expanding, exhaust and intake stroke;

two sets of ports (14 & 15), each one set shared by two chambers, ports 15 for intake of combustible air-fluid mixture and lubricating oil only and ports (14) for exhaust only,

1 or vice versa, exhaust ports always bigger in size to allow
2 release of pressure before intake begins, are conveniently
3 located in the cylindrical casing (1) and, or at the end plates (10
4 & 11), depending upon the desired performance of the engine;
5
6 and
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8 four ignition means (16, 17, 18 & 19), one for each chamber
9 ignite the compressed fuel at maximum compression, firing
10 sequentially in couples into the appropriate working chamber
11 rooms at the end of each cycle.
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14 6. (CURRENTLY AMENDED)
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16 An internal-combustion engine according to claim 1,
17 having means for imparting continuous rotation from the
18 alternating power output shaft (6) to a uni-directionally
19 rotating main shaft (22) comprising a crank (36) secured to
20 said power output shaft, a connecting rod (20) swivably
21 mounted to said crank and to the uni-directionally rotating
22 main shaft (22) through a slot on a flywheel (21), said
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connecting rod pivots back and forth across the vertical line passing through the axis of the power output shaft (6) and an axis of the uni-directionally rotating main shaft (22); said connecting rod being extendable and adjustable in length at point (27); the lower part of said connecting rod being rotatably and movably attached to the slot formed on the flywheel (21) and being fixed together with a fastening member via that slot to said flywheel in a predetermined position thus adjusting the length of the stroke of the swinging piston assembly for an optimum performance; said fastening member being comprised of a bolt and a nut coupled to the lower end of the rod and to the slot on the flywheel.

7. (CURRENTLY AMENDED)

An internal combustion engine according to claim 1, wherein as an alternative embodiment, the rigid longitudinal

vanes (7 & 8, Fig. 5), are replaced by articulating vanes (28,29,30 &31) forming four chamber rooms inside the cylinder housing (1); vane segments (29 &30) corresponding to vane (7 & 8 of Fig.1) in operation move as described in specifications for four chamber two-stroke cycle engine of Fig.1 where two sets of ports for intake of combustible air mixture and exhaust thereafter and four ignition means (not shown on Fig. 5) accomplish the same results as described in claim 1; articulated vane segments (28 & 31) form a different shaping of the chambers a, b, c and d; said vanes are suitably mounted for slidable rotation within slide-bearing means (32 & 33); said vane nutate about the joints (34 & 35) while simultaneously sliding within the bearing (32 & 33); said bearings are rotatable within the casing while allowing the vane segments (28 & 31) to slide therethrough.

8. (CURRENTLY AMENDED)

An internal combustion engine according to claim 1, wherein the intake ports (15) incorporate injection means while at the same time supplying the interior of the four chamber rooms with sufficient air flow for the burning fuel and lubricating oil for the working piston.

9. (NEW)

An internal combustion engine according to claim 1, comprising half a cylinder, one set of ports for intake and exhaust, two spark plugs and only one vane thus only one half of the engine, either left or right side (Fig. 1) and only two chambers in operation, a & d, or b & c work as described in claim 1.